AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS

1. (Currently Amended) X-radiation imagery device comprising at least one detection matrix ~~made of a semiconducting material~~, said detection matrix comprising:

~~pixels to convert incident X-photons into electric charges;~~

an electric charges reading panel having an area equal to or larger than about 10 cm x 10 cm, said electric charges reading panel including a monocrystalline silicon substrate integrating a plurality of electronic devices~~, each electronic device being integrated by pixel, the electric charges reading panel being a monocrystalline silicon panel~~; and

a detection layer made of a continuous layer of semiconducting material deposited in vapour phase on the electric charges reading panel, the detection layer converting incident X photons into electric charges, each electronic device and a portion of the detection layer formed thereon forming a respective pixel of the detection matrix.

2. (Currently Amended) Process for making an X-radiation imagery device comprising at least one detection matrix ~~made of a semiconducting material~~, said detection matrix comprising ~~pixels to convert incident X-photons into electric charges, and~~ (a) an electric charges reading panel having an area equal to or larger than about 10 cm x 10 cm, said electric charges reading panel including a monocrystalline silicon substrate integrating a plurality of electronic devices~~, each electronic device being integrated by pixel~~, and (b) a detection layer made of a semiconducting material converting incident X photons into electric charges, said process comprising:

forming the electronic devices on the monocrystalline silicon substrate to produce the electric charges reading panel; and

vapour-phase depositing the semiconducting material on the electric charges reading panel so as to form the detection layer made of a continuous layer of the semiconducting material, thereby forming a matrix of detection pixels, each detection

pixel including a corresponding electronic device and a portion of the detection layer formed thereon.

~~wherein each detection matrix is obtained by vapour phase deposition of a semiconductor on the electric charges reading panel, each detecting matrix including a detection layer made of a continuous layer of semiconducting material formed on the electric charges reading panel, the electric charges reading panel being a monocrystalline silicon panel.~~

3. (Previously Presented) Process according to claim 2, in which the evaporation properties of this semiconductor are such that the deposition can be done at a temperature lower than a temperature that damages the electronic devices.

4. (Original) Process according to claim 2, in which the semiconducting material used to make the matrix of detection pixels is CdTe, HgI_2 or PbI_2.

5. (Previously Presented) Process according to claim 2, in which electronic devices made using a process technology having a feature device size of 1.25 μm are used.

6. (Previously Presented) Process according to claim 2, in which electronic devices made using a process technology having a feature device size of 0.1 μm are used.

7. (Previously Presented) X-radiation imagery device according to claim 1, wherein the detection layer is deposited directly on the electronic devices of the electric charges reading panel in each pixel.

8. (Previously Presented) X-radiation imagery device according to claim 1, wherein the semiconducting material of the detection layer is crystalline silicon.

9. (Currently Amended) X-radiation imagery device according to claim 1, wherein each of said electronic devices comprising at least one of:

an amplifier;

a preamplifier;

a filter; or ~~and~~

a processing circuit.

10. (Currently Amended) X-radiation imagery device according to claim 9, wherein said processing circuit includes at lease one of:

a reading circuit;

an integration circuit; or ~~and~~

a counting circuit.

11. (Cancelled)

12. (Currently Amended) The method in accordance with claim 2 ~~claim 11~~, wherein said vapour-phase depositing comprises:

controlling a temperature of the deposition so as not to damage the electronic devices of the electric charges reading panel mad of monocrystalline silicon.

13. (Currently Amended) The method in accordance with claim 2 ~~claim 11~~, further comprising:

assembling more than one detection matrices to form a large area digital detector.

14. (Currently Amended) X-radiation imagery device comprising at least one detection matrix ~~made of a semiconducting material~~, said detection matrix comprising:

~~pixels to convert incident X-photons into electric charges;~~

an electric charges reading panel having an area equal to or larger than about 10 cm x 10 cm, said electric charges reading panel including a monocrystalline silicon substrate integrating a plurality of electronic devices, each electronic device including an amplifier ~~and being integrated by pixel, the electric charges reading panel being a monocrystalline silicon panel~~; and

a detection layer made of a continuous layer of a semiconducting material deposited in vapour phase on the electric charges reading panel, the detection layer converting

incident X photons into electric charges, each electronic device and a portion of the detection layer formed thereon forming a respective pixel of the detection matrix.

15. (Currently Amended) X-radiation imagery device according to claim 14, wherein each of said electronic devices further comprising at least one of:

a preamplifier;

a filter; or ~~and~~

a processing circuit.

16. (Currently Amended) Method for making an X-radiation imagery device comprising at least one detection matrix ~~made of a semiconducting material~~, said detection matrix comprising ~~pixels to convert incident X photons into electric charges, and~~ an electric charges reading panel having an area equal to or larger than about 10 cm x 10 cm, said electric charged reading panel including (a) a monocrystalline silicon substrate integrating a plurality of electronic devices, and (b) a detection layer made of a semiconducting material converting incident X photons into electric charges, said method comprising:

forming the electronic devices on the ~~a~~ monocrystalline silicon substrate to produce the electric charges reading panel ~~of each detection matrix~~, each of the electronic devices including an amplifier ~~and being integrated by pixel~~; and

vapour-phase depositing the semiconducting material on the electric charges reading panel so as to form a continuous detection layer made of ~~a continuous layer of~~ the semiconducting material, thereby forming a matrix of detection pixels, each detection pixel including a corresponding electronic device and a portion of the detection layer formed thereon.

17. (New) X-radiation imagery device according to claim 1, wherein said device has a detection area of about a few dm^2.

18. (New) Process according to claim 2, wherein said monocrystalline silicon substrate is obtained from a monocrystalline silicon wafer having a diameter of about 10 cm to about 30 cm.

19. (New) X-radiation imagery device according to claim 14, wherein said device has a detection area of about a few dm^2.

20. (New) Process according to claim 16, wherein said monocrystalline silicon substrate is obtained from a monocrystalline silicon wafer having a diameter of about 10 cm to about 30 cm.